## CLAIMS

1. A medical device with improved biological properties for an at least partial contact with blood, bodily fluids and/or tissues when introduced in a mammalian body, which device comprises a core and a nucleic acid present in a biologically compatible medium,
*characterised in,*
that said nucleic acid encodes a translation or transcription product capable leading to production of extracellular superoxide dismutase (EC-SOD) protein, which is capable of inhibiting hyperplastic connective tissue or fibromuscular formation and/or promoting endothelialisation *in vivo* at least partially on at least one synthetic surface of said core.

2. A medical device with improved biological properties for an at least partial contact with blood, bodily fluids and/or tissues when introduced in a mammalian body, which device comprises a core and EC-SOD protein present in a biologically compatible medium,
*characterised in,*
that EC-SOD protein is capable of inhibiting hyperplastic connective tissue formation and/or promoting endothelialisation *in vivo* at least partially on at least one synthetic surface of said core.

3. A device according to claim 1, wherein the nucleic acid is present in the biologically compatible medium in naked form.

4. A device according to claim 1, wherein the nucleic acid has been introduced in a viral vector selected from the group consisting of retrovirus, Sendai virus, adeno associated virus and adenovirus.

5. A device according to claims 1, wherein the nucleic acid is present in a liposome.

6. A device according to any of the preceding claims, wherein the biologically compatible medium is a biostable polymer, a bioabsorbable polymer, a biomolecule, a hydrogel polymer or fibrin.

7. A device according to claim 1, which comprises the nucleic acid in a reservoir separate from said core enabling a successive delivery thereof to a mammalian body.

8. A device according to any one of claims 1-7, wherein the nucleic acid has been attached to the core by ionic or covalent bonding.

9. A device according to any one of the preceding claims, wherein the synthetic surface is nonporous.

10. A device according to any one of claims 1-9, wherein the synthetic surface is porous and allows capillary and endothelial cell growth through the pores.

11. A device according to any one of the preceding claims, which is a cardiovascular implant.

12. A device according to any of the preceding claims 1-11, which is a vascular graft.

13. A device according to any one of claims 1-11, which is an endovascular implant.

14. A device according to claim 13, which is a stent.

15. A device according to claim 13, which is a stent graft.

16. A device according to any of claims 1-11, which is a graft connector.

17. A device according to any one of claims 1-11, which is a tissue implant.

18. A device according to any one of claims 1-11, which is a biosensor.

19. A method of improving a mammalian body's biocompatibility with a synthetic surface, which method comprises introducing a device comprising at least one synthetic surface in the body with an at least partial contact with blood, bodily fluids and/or tissues and administering a nucleic acid present in a biologically compatible medium to the surroundings thereof, wherein the nucleic acid encodes a translation or transcription product capable of increasing EC-SOD production and inhibition of hyperplastic connective tissue growth and/or promoting endothelialisation *in vivo* at least partially on said synthetic surface, said administration of nucleic acid being performed before, simultaneously as or after the introduction of the device in the body.

20. A method according to claim 17, wherein the nucleic acid is administered in naked form.

21. A method according to claim 17, wherein the nucleic acid is administered in a viral vector selected from the group consisting of retrovirus, Sendai virus, adeno associated virus and adenovirus.

22. A method according to claim 17, wherein the nucleic acid is administered in a liposome.

23. A method according to anyone of claims 17-22, wherein the nucleic acid is administered systemically to the mammalian before, during or after introduction of the device in a mammalian body.

24. A method according to anyone of claims 17-22, wherein the nucleic acid is administered to the surroundings of the device before, during or after introduction thereof in a mammalian body.

25. A method according to anyone of claims 17-22, wherein the nucleic acid is administered to the device before introduction thereof in a mammalian body.

26. A method according to claim 24, wherein the nucleic acid is attached to the core by ionic or covalent bonding.

27. A method according to any one of claims 17-24, wherein the biologically compatible medium is a biostable polymer, a bioabsorbable polymer, a biomolecule, a hydrogel polymer or fibrin.

28. A method according to any one of claims 17-26, wherein the step of administering the nucleic acid is repeated at least once.

29. A method according to any one of claims 17-27 wherein the mammalian body is a human body.

30. A method according to any one of claims 17-28 wherein the device is an implant used in cardiovascular surgery.

31. A method according to any one of claims 17-29 wherein the device is replacing a part of the body.

32. A method according to any one of claims 17-29 wherein the device is an endovascular implant.

33. A method according to any one of claims 17-28 wherein the device is a tissue implant.

34. A method according to any one of claims 17-28 wherein the device is a biosensor.

35. A method of producing a medical device with improved biological properties for an at least partial contact with blood, bodily fluids and/or tissues when introduced in a mammalian body, which comprises providing a core comprising at least one surface of a synthetic material; and providing a nucleic acid in a biologically compatible medium, which nucleic acid encodes a translation or transcription product capable of increasing SOD-production which is capable of inhibiting hyperplastic connective tissue growth and/or promoting endothelialisation *in vivo* at least partially on at least one surface of said core.

36. A method according to claim 34, wherein the nucleic acid is attached to the core by ionic or covalent bonds.

37. A method according to claim 34, wherein the nucleic acid is provided in a reservoir separate from the core to enable addition thereof at least once to the surroundings of the core after introduction into a mammalian body.

38. Use of a nucleic acid encoding EC-SOD, for the manufacture of a therapeutic composition intended to be administered systemically to a mammalian, whereby inhibition of hyperplastic connective tissue growth and/or promoting endothelialisation *in vivo* at least partially on a synthetic surface implanted in said mammalian is enabled.

39. Use of EC-SOD protein for the manufacture of a therapeutic composition intended to be administered systemically to a mammalian, whereby inhibition of hyperplastic connective tissue growth and/or promoting endothelialisation *in vivo* at least partially on a synthetic surface implanted in said mammalian is enabled.

40. Use of a nucleic acid encoding EC-SOD to improve the biological properties of a synthetic surface of a medical device, wherein said nucleic acid in a biologically compatible medium is contacted with said surface in solution or gel form, whereby inhibition of hyperplastic connective tissue growth and/or promoting endothelialisation *in vivo* at least partially on the synthetic surface is enabled.

41. Use of a EC-SOD protein to improve the biological properties of a synthetic surface of a medical device, wherein said protein in a biologically compatible medium is contacted with said surface in solution or gel form, whereby inhibition of hyperplastic connective tissue growth and/or promoting endothelialisation *in vivo* at least partially on the synthetic surface is enabled.

42. Use of EC-SOD gene/cDNA for the manufacture of a medicament for treating conditions caused by damages due to vascular manipulations.

43. Use according to claim 42, wherein said condition is restenosis.

44. Use according to claim 42, wherein said condition is blood vessel thickening.

45. Use of EC-SOD protein for the manufacture of a medicament for treating conditions caused by damages due to vascular manipulations.

46. Use according to claim 45, wherein said condition is restenosis.

47. Use according to claim 45, wherein said condition is blood vessel thickening.

48. Use of EC-SOD gene/cDNA or protein for the manufacture of a medicament for decreasing macrophage accumulation after a vascular manipulation.

49. Use according to any of the claims 42-48, wherein the medicament is administered by local or systemic delivery.